(56) References Cited

U.S. PATENT DOCUMENTS

7,607,641	B1	10/2009	Yuan
7,648,835	B2	1/2010	Breidford et al.
7,655,470	B2	2/2010	Ismagilov et al.
7,658,536	B2	2/2010	Johnson et al.
7,658,829	B2	2/2010	Kanagasabapathi et al.
2009/0014394	A1	1/2009	Yi et al.
2009/0068170	A1*	3/2009	Weitz et al 424/130.1

OTHER PUBLICATIONS

Allan, et al., Particle Motions in Sheared Suspensions, XIV. Coalescence of Liquid Drops in Electric and Shear Fields, Journal of Colloid Science, 1962, pp. 383-408, vol. 17.

Aubry, et al., Control of Electrostatic Particle-Particle Interactions in Dielectrophoresis, Europhysics Letters, 2006, pp. 623-629, vol. 74. Aubry, et al. Influence of Particle-Particle Interactions and Particles Rotational Motion in Traveling Wave Dielectrophoresis, Electrophoresis, 2006, pp. 703-715, vol. 27.

Aubry, et al., Electrostatic Forces on Particles Floating Within the Interface Between Two Immiscible Fluids, Proceedings of IMECE2007, ASME International Mechanical Engineering Congress and Exhibition, Nov. 11-15, 2007, pp. 1-8.

Aubry et al., Micro- and Nonoparticles Self-Assembly for Virtually Defect-Free, Adjustable Monolayers, Proceedings of the National Academy of Sciences of the United States of America, Mar. 11, 2008, pp. 3711-3714, vol. 105, No. 10.

Aubry, et al., Physics Underlying Controlled Self-Assembly of Micro- and Nanoparticles at a Two-Fluid Interface Using an Electric Field, Physical Review, May 7, 2008, pp. 056302-1-056302-11, vol. 77

Aveyard, et al., Emulsions Stabilised Solely by Colloidal Particles, Advances in Colloid and Interface Science, 2003, pp. 503-546, vols. 100-102.

Aveyard, et al., Aspects of the Stabilisation of Emulsions by Solid Particles: Effects of Line Tension and Monolayer Curvature Energy, Physical Chemistry Chemical Physics, 2003, pp. 2398-2409, vol. 5. Aveyard, et al., Structure and Collapse of Particle Monolayers Under Lateral Pressure at the Octane/Aqueous Surfactant Solution Interface, Langmuir, 2000, pp. 8820-8828, vol. 16.

Basaran, et al., Axisymmetric Shapes and Stability of Pendant and Sessile Drops in an Electric Field, Journal of Colloid and Interface Science, Nov. 1990, pp. 10-30, vol. 140, No. 1.

Basaran, Small-Scale Free Surface Flows with Breakup: Drop Formation and Emerging Applications, Perspective, Sep. 2002, pp. 1842-1848, vol. 48, No. 9.

Baygents, et al., Electrohydrodynamic Deformation and Interaction of Drop Pairs, J. Fluid Mech., 1998, pp. 359-375, vol. 368.

Binks, Particles as Surfactants—Similarities and Differences, Current Opinion in Colloid & Interface Science, 2002, pp. 21-41, vol. 7. Binks, et al., Influence of Particle Wettability on the Type and Stability of Surfactant-Free Emulsions, Langmuir, 2000, pp. 8622-8631, vol. 16.

Binks, et al., Naturally Occurring Spore Particles at Planar Fluid Interfaces and in Emulsions, Langmuir, 2005, pp. 8161-8167, vol. 21. Bon, et. al., Route to Stable Non-Spherical Emulsion Droplets, European Polymer Journal, 2007, pp. 4839-4842, vol. 43.

Chabreyrie, et al., Tailored Mixing Inside a Translating Droplet, Physical Review E, 2008, pp. 036314-1-036314-4, vol. 77.

Chabreyrie, et al., Robustness of Tuned Mixing Within a Droplet for Digital Microfluidics, Mechanics Research Communications, 2009, pp. 130-136, vol. 36.

Chao, et al., Control of Concentration and Volume Gradients in Microfluidic Droplet Arrays for Protein Crystallization Screening, 26th Annual International Conference of the IEEE EMBS, Sep. 1-5, 2004, pp. 2623-2626, vol. 1(1).

Cho, et al., Concentration and Binary Separation of Micro Particles for Droplet-Based Digital Microfluidics, Lap Chip, 2007, pp. 490-498, vol. 7.

Darhuber, et al., Principles of Microfluidic Actuation by Modulation of Surface Stresses, Annu. Rev. Fluid Mech., 2005, pp. 425-455, vol. 37.

Dinsmore, et al., Colloidosomes: Selectively Permeable Capsules Composed of Colloidal Particles, Science, Nov. 1, 2002, pp. 1006-1009, vol. 298

De La Mora, The Fluid Dynamics of Taylor Cones, The Annual Review of Fluid Mechanics, 2007, pp. 217-243, vol. 39.

Garton, et al., Bubbles in Insulating Liquids: Stability in an Electric Field, Proceedings of the Royal Society of London. Series A, Mathematical and Physical Sciences, Jul. 21, 1964, pp. 211-226, vol. 280, No. 1381.

Green, et al., Numerical Solution of the Dielectrophoretic and Travelling Wave Forces for Interdigitated Electrode Arrays Using the Finite Element Method, Journal of Electrostatics, 2002, pp. 235-254, vol. 56.

Heida, et al., Understanding Dielectrophoretic Trapping of Neuronal Cells: Modelling Electric Field, Electrode-Liquid Interface and Fluid Flow, Journal of Physics D: Applied Physics, 2002, pp. 1592-1602, vol. 35.

Horozov, et al., Particle-Stabilized Emulsions: A Bilayer or a Bridging Monolayer, Angewante Chemie-International Edition, 2006, pp. 773-776, vol. 45.

Jones, et al., Multipolar Dielectrophoretic and Electrorotation Theory, Journal of Electrostatics, 1996, pp. 121-134, vol. 37.

Jones, Electromechanics of Particles, 1995, p. 181-188, Cambridge University Press, Cambridge.

Kadaksham, et al., Manipulation of Particles Using Dielectrophoresis, Mechanics Research Communications, 2006, p. 108-122, vol. 33.

Kadaksham, et al., Dynamics of Electrorheological Suspensions Subjected to Spatially Nonuniform Electric Fields, Journal of Fluids Engineering, Mar. 2004, pp. 170-179, vol. 126.

Kadaksham, et al., Dielectrophoresis of Nanoparticles, Electrophoresis, 2004, pp. 3625-3632, vol. 25.

Kadaksham, et al., Dielectrophoresis Induced Clustering Regimes of Viable Yeast Cells, Electrophoresis, 2005, pp. 3738-3744, vol. 26. Klingenberg, et al., Dynamic Simulation of Electrorheological Suspensions, The Journal of Chemical Physics, Dec. 15, 1989, pp. 7888-

Li, et al., Linear Stability of a Two-Fluid Interface for Electrohydrodynamic Mixing in a Channel, J. Fluid Mech., 2007, pp. 347-377, vol. 583.

7895, vol. 91

Lin, et al., Nanoparticle Assembly and Transport at Liquid-Liquid Interfaces, Science, Jan. 10, 2003, pp. 226-229, vol. 299.

Melcher, et al., Electrohydrodynamics: A Review of the Role of Interfacial Shear Stresses, Annu. Rev. Fluid Mech., 1969, pp. 111-146, vol. 1.

Melle, et al., Pickering Emulsions with Controllable Stability, Langmuir, 2005, pp. 2158-2162, vol. 21.

Menon, et al, Particle-Fluid Interactions with Application to Solid-Stabilized Emulsions, Colloids and Surfaces, 1986, pp. 89-105, vol. 19

Mugele, et al., Electrowetting: From Basics to Applications, Journal of Physics: Condensed Matter, 2005, pp. R705-R774, Matter 17.

Nudurupati, et al., Concentrating Particles on Drop Surfaces Using External Electric Fields, Electrophoresis, 2008, pp. 1164-1172, vol. 20

Nudurupati, et al., Electrohydrodynamics of Yeast Cells in Microchannels Subjected to Travelling Electric Fields, Journal of Physics D: Applied Physics, 2006, pp. 3425-3439, vol. 39.

O'Konski, et al., The Distortion of Aerosol Droplets by an Electric Field, Division of Physical and Inorganic Chemistry, Dec. 1953, pp. 955-958, vol. 57.

Ozen, et al., Monodisperse Drop Formation in Square Microchannels, Physical Review Letters, 2006, pp. 144501-1-144501-4, vol. 96. Ozen, et al., Electrohydrodynamic Linear Stability of Two Immiscible Fluids in Channel Flow, Electrochimica Acta, 2006, pp. 5316-5323, vol. 51.

Pickering, Pickering: Emulsions, J. Chem. Soc., Jan. 1, 1907, pp. 2001-2021, vol. 91(2).

Pieranski, Two-Dimensional Interfacial Colloidal Crystals, Physical Review Letters, Aug. 18, 1980, pp. 569-582, vol. 45, No. 7.